

WHAT IS CLAIMED IS:

1. A method for fabricating a semiconductor integrated circuit device, comprising the steps of:

- (a) exposing a first major surface of a wafer to a hydrogen gas atmosphere in a heat treatment chamber;
- (b) synthesizing moisture, in a first temperature range, not higher than a first temperature, from oxygen gas and excess hydrogen gas by use of a catalyst in a moisture synthesizing portion, to produce synthesized moisture;
- (c) transferring the synthesized moisture together with excess hydrogen into the heat treatment chamber, to form a wet oxidative atmosphere over the first major surface of the wafer inside the chamber, while keeping the moisture in a gaseous state; and
- (d) performing selective oxidation treatment of a first member over the first major surface of the wafer, in the wet oxidative atmosphere in the heat treatment chamber, by heating the first major surface of the wafer up to a second temperature range not lower than a second temperature higher than the first temperature.

2. A method for fabricating a semiconductor integrated circuit device as claimed in Claim 1, wherein the heat treatment chamber is a single-wafer heat treatment chamber, and the heating is by lamp heating.

3. A method for fabricating a semiconductor integrated circuit device according to Claim 1, wherein the second temperature is not lower than 800°C.

4. A method for fabricating a semiconductor integrated circuit device according to Claim 1, wherein the first temperature is not higher than 450°C.

5. A method for fabricating a semiconductor integrated circuit device according to Claim 1, wherein oxygen gas is not introduced into the moisture synthesizing portion while the first major surface of the wafer is exposed to the hydrogen gas atmosphere prior to the start of synthesizing moisture.

6. A method for fabricating a semiconductor integrated circuit device according to Claim 1, wherein gases other than oxygen gas and hydrogen gas are not introduced into the moisture synthesizing portion during the synthesis of moisture.